PTO/\$B/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid CMB control number.

| Subctitu | το <u>Γος Γρανο 1440</u> Δ(RI | Δ | | | Complete if Known | |
|----------|-------------------------------|---------|------------|------------------------|-----------------------------------|------------|
| INIE | | l Dic | CI OCUPE | Application Number | Continuation of Applie 09/127,382 | cation No. |
| | | | CLOSURE | Filing Date | July 31, 1998 | |
| SIA | TEMENT E | SY AF | PLICANT | First Named Inventor | Abbott, Nicholas | |
| | | | | Group Art Unit | 1627 1639 | |
| | (use as many sh | eets as | necessary) | Examiner Name | Celsa, B. | 5 |
| Sheet | 1 | of | 4 | Attorney Docket Number | 2307Z-085830US | A.C. |

+

| U.S. PATENT DOCUMENTS | | | | | | |
|------------------------|--------------------------|--|---|--|--|--|
| | | U.S. Patent Document | | | Pages, Colum | |
| Examiner Initials * | Cite No. ¹ | Number Kind Code ² (if known) | Name of Patentee or Applicant of Cited Document | Dete of Publication of Cited Document MM-DD-YYYY | Where Region Passages or Relevant Figures Appear | |
| 11/ | AA | 4,513,034A | Sparer | 04/23/85 | | |
| | AB | 4,597,942 | Meathrel, W. G. | 07/01/86 | | |
| | AC | 4,902,106A | Dijon | 02/20/90 | | |
| | AD | 5,071,526 | Pletcher et al. | 12/10/91 | | |
| | AE | 5,130,828 | Fergason, J.L. | 07/14/92 | | |
| | AF | 5,618,493 | Goldstein et al. | 04/08/97 | | |
| | AG | 5,658,491A | Kistner | 08/19/97 | | |
| ni | AH | 5,677,195A | Winkler et al. | 10/14/97 | | |

| | | | - | FOREIGN PA | TENT DOCUMENT | S | | |
|--------------------|--------------|---------------------|---------------------|-----------------------------------|---|--|---|------------|
| | | | Foreign Patent D | ocument |] | 1 | Pages, Columns, | |
| Examiner Initials* | Cite No.1 | Office ³ | Number ⁴ | Kind Code ⁵ (if known) | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Lines, Where Relevant Passages or Relevant Figures Appear | ⊤ ⁵ |
| NF | ΑI | PCT | WO 94/034 | 96 A | Csiro | 02/17/94 | | |
| | AJ | PCT | WO 97/322 | 02 A | University of Leeds | 09/04/97 | | |
| | AK | PCT | WO 97/337 | 37 A | Harvard College | 09/18/97 | | |
| | ΑĹ | PCT | WO 97/351 | 98 A | Ontogen | 09/25/97 | | |
| MI | AM | PCT | WO 98/046 | 52 A | US Naval Research | 02/05/98 | | |

| 0 | | | |
|-----------------------|------|--------------------|---------|
| Examiner Signature | MINS | Date Considered | 1/28/04 |

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the Individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

SF 1242940 v1

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WiPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.





Please type a plus sign (+) inside this box +

PTO/SB/08B (08-00)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Complete if Kn wn Continuation of Application No. **Application Number** 09/127,382 Filing Date July 31, 1998 First Named Inventor Abbott, Nicholas Group Art Unit 1627 1630 Examiner Name Celsa, B.

(use as many sheets as necessary)

or 4 Attomey Docket Number 02307Z-085830US

| <u></u> | | OTHER PRIOR ART NON PATENT LITERATURE DOCUMENTS | |
|--------------------------|--------------|---|----|
| Exami ner Initials | Cite No.1 | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T² |
| M | AN | Bain, C.D., et al., "Formation of Monolayers by the Coadsorption of Thiols on Gold: Variation in the Length of the Alkyl Chain," J. Am. Chem. Soc., 111:7164-7175 (1989) | |
| | AO | Charych, D., et al., "A 'litmus test' for molecular recognition using artificial membranes," Chemistry & Biology 3(2):113-120 (1996) | |
| | AP | Charych, D.H., et al., "Direct Colorimetric Detection of a Receptor-Ligand Interaction by a Polymerized Bilayer Assembly," Science 261:585-588 (1993) | · |
| | AQ | Cognard, J., "Alignment of Nematic Liquid Crystals and Their Mixtures," Mol. Cryst. Liq. Cryst., 1:1-74 (1982) | |
| | AR | Drawhorn, R.A., et al., "Anchoring of Nematic Liquid Crystals on Self-Assembled Monolayers Formed from Alkanethiols on Semitransparent Films of Gold," J. Phys. Chem., 99(45)11-16515 (1995) | |
| | AS | Frey, B.L., et al., "Covalent Attachment and Derivatization of Poly(L-lysine) Monolayers on Gold Surfaces As Characterized by Polarization-Modulation FT-IR Spectroscopy," Analytical Chemistry 68(18):3187-3193 (1996) | |
| | AT | Gupta, V.K., et al., "Design of Surfaces for Patterned Alignment of Liquid Crystals on Planar and Curved Substrates," Science 276:1533-1536 (1997) | |
| | AU | Gupta, V.K., et al., "Optical Amplification of Ligand-Receptor Binding Using Liquid Crystals," Science 279(5359):2077-2080 (3/27/98) | |
| | AV | Gupta, V.K., et al., "Uniform Anchoring of Nematic Liquid Crystals on Self-Assembled Monolayers Formed from Alkanethiols on Obliquely Deposited Films of Gold," Langmuir 12:2587-2593 (1996) | |
| | AW | Hickman, J.J., et al., "Rational pattern design for in vitro cellular networks using surface photochemistry," J. Vac. Sci. Technol., 12(3):607-16 (1994) | |
| | AX | Hiltrop, J.K., et al., "On the Alignment of Thermotropic Nematic and Smectic Liquid Crystals on Lecithin Coated Surfaces," Ber. Bunsenges. Phys. Chem., 98(2):209-213 (1994) | |
| | AY | Jackman, R.J., et al., "Fabrication of Submicrometer Features on Curved Substrates by Microcontact Printing," Science, 269:664-665 (1995) | |
| M | AZ | Jerome, B., "Surface effects and anchoring in liquid crystals," Rep. Prog. Phys. 54:391-451 (1991) | |

| Examiner Signature | 1/28/04 |
|--------------------|---------|
|--------------------|---------|

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

SF 1242940 v1

¹ Unique citation designation number. ² Applicant is to place a check mark here if English language Translation is attached.



Please type a plus sign (+) inside this box +



PTO/SB/08B (08-00)

Approved for use through 10/31/2002. OMB 0851-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449B/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Complete if Kn wn Continuation of Application No. Applicati n Number 09/127,382 Filing Dat July 31, 1998 First Named Inventor Abbott, Nicholas 1627 1639 Group Art Unit Examiner Name Celsa, B.

(use as many sheets as necessary)

OT Attorney Docket Number 023072-08583005

| | | OTHER PRIOR ART NON PATENT LITERATURE DOCUMENTS | |
|--------------------------|--------------------------|---|-----|
| Exami ner Initials | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T 2 |
| 2/ | AAA | Kim, T., "Polymeric Self-Assembled Monolayers. 5. Synthesis and Characterization of ω -Functionalized, Self-Assembled Diacetylenic and Polydiacetylenic Monolayers," Langmuir 12:6065-6073 (1996) | |
| | ABB | Kumar, A., et al., "Patterned Self-Assembled Monolayers and Meso-Scale Phenomena," Acc. Chem. Res., 28:219-226 (1995) | |
| | ACC | Lenk, T.J., et al., "Structural Investigation of Molecular Organization in Self-Assembled Monolayers of a Semifluorinated Amidethiol," Langmuir 10(12):4610-4617 (12/94) | |
| | ADD | Miller, W.J., et al., "Planar Anchoring of Nematic 5CB on Self-Assembled Monolayers Formed From Alkanethiols on Gold," Applied Physics Letters 69(13):1852-1854 (09/23/96) | |
| | AEE | Mrksich, M, et al., "Using Self-Assembled Monolayers to Understand the Interactions of Man-Made Surfaces with Proteins and Cells," Annu. Rev. Biophys. Biomol. Struct., 25:55-78 (1996) | |
| | AFF | Pan, J.J., et al., "Molecular Recognition and Colorimetric Detection of Cholera Toxin by Poly(diacetylene) Liposomes Incorporating G _{ml} Ganglioside," Langmuir 13:1365-1367 (1997) | |
| | AGG | Poziomek, E.J., et al., "Use of Liquid Crystals as Vapor Detectors," Mol. Cryst. Liq. Cryst., 27(1-2):175-185 (5/1973) | |
| | АНН | Proust, J.E., et al., "Orientation of a Nematic Liquid Crystal by Suitable Boundary Surfaces," Solid State Commun. 11:1227-1230 (1972) | |
| | AII | Spinke, J., et al. "Molecular recognition at self-assembled monolayers: Optimization of surface functionalization," J. Chem. Phys., 99(9):7012-7019 (1993) | |
| | AJJ | Tarlov, M.J., et al., "UV Photopatterning of Alkanethiolate Monolayers Self-Assembled on Gold and Silver," J. Am. Chem. Soc., 115:5305 (1993) | |
| | AKK | Wagner, P., et al., "Covalent Immobilization of Native Biomolecules onto Au (111) via N-Hydroxysuccinimide Ester Functionalized Self-Assembled Monolayers for Scanning Probe Microscopy," <i>Biophysical Journal</i> , 70:2052-2066 (1996) | |
| | ALL | Xia, Y., et al., "Use of Controlled Reactive Spreading of Liquid Alkanethiol on the Surface of Gold To Modify the Size of Features Produced by Microcontact Printing," J. Am. Chem. Soc., 117:3274-3275 (1995) | |

| Examiner Signature | & alm | Date Considered | 1/28/04 | , |
|-----------------------|-------|--------------------|---------|--|
| | | | | The second secon |

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

SF 1242940 V1

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English language Translation is attached.

| Please type a | plus sign (+ |) inside this | \rightarrow | + |
|---------------|--------------|---------------|---------------|---|

Substitute for form 1449B/PTO

PTO/SB/08B (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Petent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of Information unless it contains a valid OMB control number

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Complete if Known Continuation of Application No. **Application Number** 09/127,382 Filing Date July 31, 1998 First Named Inventor Abbott, Nicholas **Group Art Unit** 1627 **Examiner Name** Celsa, B.

(use as many sheets as necessary)

or 4 Attorney Docket Number 02307Z-085830US

| | | OTHER PRIOR ART NON PATENT LITERATURE DOCUMENTS | |
|--------------------------|--------------|---|-----|
| Exami ner Initials | Cite No.1 | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T 2 |
| M | AMM | Yang, J.Y., et al., "Binary self-assembled monolayers: spectroscopy and application to liquid crystal alignment," Masuhara et al., Eds.; Microchemistry, North-Holland, Amsterdam, 1994, p.441 | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | · | |
| | | | . 🗆 |

| Examiner | 1. 1.11 | Date |
|-----------|---------|--------------------|
| Signature | II M | Considered 1/28/07 |

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the Individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Officer, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

SF 1242940 v1

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English language Translation is attached.